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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,012	10/31/2003	Donis Flagello	081468-0302644	7154
909	7590	12/07/2004	EXAMINER	
PILLSBURY WINTHROP, LLP P.O. BOX 10500 MCLEAN, VA 22102			FULLER, RODNEY EVAN	
			ART UNIT	PAPER NUMBER
			2851	

DATE MAILED: 12/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/698,012

Applicant(s)

FLAGELLO ET AL.

Examiner

Rodney E Fuller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6,7,9-15,18-20,22 and 23 is/are rejected.
- 7) ☒ Claim(s) 3,5,8,16,17 and 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

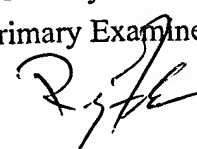
- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

Rodney Fuller  
Primary Examiner



## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Specification*

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because the abstract exceeds the "150-words" limit. Correction is required. See MPEP § 608.01(b).

3. The disclosure is objected to because of the following:

The disclosure uses the terms "translucent" and "transparent" to describe the "plate 12" (see paragraph 0031, line 3 and paragraph 0044, line 1). Further, both terms are used throughout the disclosure interchangeably. Neither term is specifically defined in the specification.

However, paragraph 0036 states that "the translucent plate" "may be formed by any material that is transparent." It is noted that for optical engineering applications, the term "translucent" is typically defined as "transmitting light but causing sufficient diffusion to prevent perception of distinct images," and the term "transparent" is typically defined as "capable of transmitting light so that objects or images can be seen as if there were no intervening material." Thus, it appears that the term "translucent" throughout the specification should be "transparent."

Appropriate correction is required.

***Drawings***

4. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the current drawings are informal. Specifically, Figures 2 – 6 and the associated reference numbers appear to be hand-drawn. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

***Claim Objections***

5. Claims 1-11, 13, 14, 17, 18, 21-23 are objected to because of the following:

Claims 1 and 13 use the term “translucent” in referring to the “plate positioned between an optical element of the projection system and the substrate.” As noted in the Objection to the Specification above, it appears that the term “translucent” should be “transparent.”

Claims 2-11 depend from claim 1 and therefore include the deficiencies of claim 1.

Claims 14, 17, 18 and 21-23 depend from claim 13 and therefore include the deficiencies of claim 13.

Appropriate correction is required.

6. Claims 3, 5, 8, 16, 17 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 4, 6, 7, 9, 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Hesse, et al. (DD 224 448 A1).

Regarding claims 1 and 12-14, Hesse discloses “a radiation system constructed and arranged to provide a projection beam of radiation; a support structure constructed and arranged to supporting a patterning device, the patterning device constructed and arranged to pattern the projection beam according to a desired pattern; a substrate table (Fig. 1, ref.# 11) constructed and arranged to hold a substrate (Fig. 1, ref.# 8); a projection system (Fig. 1, ref.# 1) constructed and arranged to project the patterned beam onto a target portion of the substrate; a translucent plate (Fig. 1, ref.# 5) positioned between an optical element (Fig. 1, ref.# 4) of the projection system (Fig. 1, ref.# 1) and the substrate (Fig. 1, ref.# 8); a first fluid (Fig. 1, ref.# 10) having a first index of refraction filling a first space between the substrate and the translucent plate (Fig. 1, ref.# 5, 9); and a second fluid (Fig. 1, ref.# 3) having a second index of refraction filling a second space between the translucent plate and the optical element.” (Note: The structures of a “radiation system,” “a support structure,” and a “patterning device,” are not specifically shown in the figures. However, these structures are inherent to the photolithography system of Hesse.)

Regarding claim 4, Hesse discloses “wherein the translucent plate has a third index of refraction.” Note: The glass plate (ref.# 5, 9) would inherently have an index of refraction.

Regarding claim 6, Hesse discloses “wherein the third index of refraction is substantially equal to the first index of refraction.” Note: Given that the first fluid and the plate transmits the same light, the index of refraction of the two must necessarily be “substantially equal”.

Regarding claim 7, Hesse discloses “wherein the third index of refraction is substantially equal to the second index of refraction.” Note: Given that the second fluid and the plate transmits the same light, the index of refraction of the two must necessarily be “substantially equal”.

Regarding claim 9, Hesse discloses “wherein the second index of refraction is substantially equal to an index of refraction of the optical element.” Note: Given that the optical element and second fluid transmits the same light, the index of refraction of the two must necessarily be “substantially equal”.

9. Claims 1, 2, 4, 6, 7, 9, 12-14, 15, 18, 22 and 23 are rejected under 35 U.S.C. 102(b) as being anticipated by Stevens (US 3,648,587).

Regarding claims 1 and 12-14, Stevens discloses “a radiation system constructed and arranged to provide a projection beam of radiation; a support structure constructed and arranged to supporting a patterning device, the patterning device constructed and arranged to pattern the projection beam according to a desired pattern; a substrate table (Fig. 1, ref.# 16) constructed and arranged to hold a substrate (Fig. 1, ref.# 15); a projection system (Fig. 1, ref.# 1) constructed and arranged to project the patterned beam onto a target portion of the substrate (Fig. 1, ref.# 15);

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a translucent plate (Fig. 1, ref.# 5) positioned between an optical element (Fig. 1, ref.# 3) of the projection system and the substrate (Fig. 1, ref.# 15); a first fluid (column 1, line 60) having a first index of refraction filling a first space between the substrate and the translucent plate; and a second fluid (column 2, line 10 – i.e., airspace ref.# 4) having a second index of refraction filling a second space between the translucent plate and the optical element.”

Regarding claims 2 and 15, Stevens discloses “wherein the first index of refraction is greater than the second index of refraction.” (Note: The first media is a “liquid” and the second media is “air.” – i.e., index of liquid > index of air)

Regarding claim 4, Stevens discloses “wherein the translucent plate has a third index of refraction.” Note: The glass plate (ref.# 5) would inherently have an index of refraction.

Regarding claims 6 and 22, Stevens discloses “wherein the third index of refraction is substantially equal to the first index of refraction.” Note: Given that the first fluid and the plate transmits the same light, the index of refraction of the two must necessarily be “substantially equal”.

Regarding claims 7 and 23, Stevens discloses “wherein the third index of refraction is substantially equal to the second index of refraction.” Note: Given that the second fluid and the plate transmits the same light, the index of refraction of the two must necessarily be “substantially equal”.

Regarding claims 9 and 18, Stevens discloses “wherein the second index of refraction is substantially equal to an index of refraction of the optical element.” Note: Given that the second fluid and the lens transmits the same light, the index of refraction of the two must necessarily be “substantially equal”.

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 10, 11, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stevens (US 3,648,587) in view of Sewell (US 6,809,794).

Stevens discloses all the structure set forth in the claims except wherein the first and/or the second fluid is a "perfluoropolyether fluid." Sewell discloses that it is well known in the art to utilize a perfluoropolyether fluid as an immersion media (See column 4, line 67 – column 5, line 2). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Stevens by using a perfluoropolyether fluid as an immersion media. The ordinary artisan would have been motivated to modify Stevens in the manner described above since perfluoropolyether fluid transmits light with a wavelength of 193nm. (See Sewell, column 4, line 67)

***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney E Fuller whose telephone number is 571-272-2118. The examiner can normally be reached on 8:00am - 4:30pm.

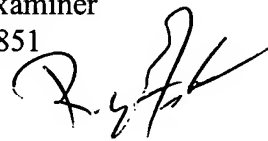


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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rodney E Fuller  
Primary Examiner  
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A handwritten signature in black ink, appearing to read 'R. E. Fuller', is written over the printed name and title of the examiner.

November 30, 2004